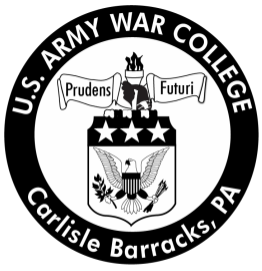
Strategy Research Project

AFRICOM'S Adaptive Logistics Network: Database Feeds

by

Lieutenant Colonel Muriel R. Loney
United States Army Reserves



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The United States Africa Command (AFRICOM) conducts security cooperation programs which support the US national security policy on the continent of Africa. The challenges facing this command are vast, but none any greater than the logistical challenges which exist for this combatant command. One initiative to aid with these challenges underway by the USAFRICOM J4 staff is the Adaptive Logistics Network (ALN). The purpose of this paper is to identify organizations that can offer services in construction, transportation, maintenance, water, and fuel and can be entered into the ALN database. These present day organizations and resources will help support US strategic interests as AFRICOM continues to move forward in building and strengthening partnerships within the Sub-Sahara region.

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USAWC STRATEGY RESEARCH PROJECT

AFRICOM'S ADAPTIVE LOGISTICS NETWORK: DATABASE FEEDS

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ABSTRACT

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The United States Africa Command (AFRICOM) conducts security cooperation programs which support the U.S. national security policy on the continent of Africa. The challenges facing this command are vast, but none any greater than the logistical challenges which exist for this combatant command. One initiative to aid with these challenges underway by the U.S.AFRICOM J4 staff is the Adaptive Logistics Network (ALN). The purpose of this paper is to identify organizations that can offer services in construction, transportation, maintenance, water, and fuel and can be entered into the ALN database. These present day organizations and resources will help support U.S. strategic interests as AFRICOM continues to move forward in building and strengthening partnerships within the Sub-Sahara region.

AFRICOM'S ADAPTIVE LOGISTICS NETWORK: DATABASE FEEDS

> Applied correctly, logistics is a science of planning and mission analysis. An Adaptive Logistics Network is a way of creating an accessible corporate memory by using information associated with previous work in a specific region. With ALN we can work smarter, saving time, money and increasing efficiencies as well.
>
> —Colonel Mike Balser
> U.S. Army Africa Logistics Director

The concept of employing adaptive logistics network is a relatively new way of accomplishing the logistics mission, but it is an idea that has been around for a long time. With the United States military currently conducting operations along several fronts (Iraq, Afghanistan, Kuwait), the country in the midst of a recession, and the United States Africa Command having the responsibility of managing a huge African area of responsibility, many key planners have concluded that U.S. military resources simply cannot continue to operate status quo and meet the ever increasing demand.

The challenges facing this command are vast, but none any greater than the logistical challenges which exist for this combatant command. One initiative to aid with these challenges underway by the U.S. AFRICOM J4 staff is the Adaptive Logistics Network (ALN). This is where ALN can bridge the capabilities gap. The ALN emphasizes and enables close collaboration, cooperation and mutual support between willing partners from several different agencies. These agencies include Department of Defense (DoD), allied nations, other U.S. government agencies, commercial firms, Non-Governmental Organizations (NGOs), and various other organizations that share common objectives. The ALN suggests that potential solutions to African logistics continent challenges begin at the lowest level possible before U.S. forces are called in to adjudicate.[1]

Adaptive Logistics Network (ALN)

The U.S. Africa Command J4 staff is actively addressing the logistical challenges on the African continent through the development of the Adaptive Logistics Network (ALN). The ALN is one of the command's key logistics initiatives to support full spectrum operations on the continent. The goal with ALN is to develop a flexible network of logistics capabilities that can respond to the full range of logistic demands. The heart of the ALN will be comprehensive, real-time knowledge of available logistic capabilities and capacities across the continent. The ALN's goal is to use logistics as a means to build partner nation capacity and security while increasing operational flexibility. It is a framework of relationships and capabilities that will enable AFRICOM to accomplish its stated mission.[2]

This logistical tool was designed to track local logistics information in a specific geographical region. As the ALN works towards saving time as well as money, it will also increase response time by storing information on previously used vendors and companies which can be accessed for future needs. With a common objective, this tool was designed to "sustain close collaboration, cooperation and mutual support between partners and other entities with a common mission."[3] The U.S. Africa Command seeks to evolve, improve and utilize the ALN, thorough employment of local vendors and companies. The common purpose will be to improve the quality of life for all while protecting the U.S. interest as well as stabilizing a stronger future for the African people.

U.S. Military-Sustainment Operations in Sub-Saharan Africa

The U.S. Africa Command is committed to the delivery and sustainment of effective security cooperation programs that build partner security capacity.[4] However, these programs have many sustainment challenges that serve to inhibit the ability to

effectively build these partnerships. The vast majority of these challenges center around the lack of or poor quality of existing infrastructure. The following briefly outlines the transportation modes and state of the infrastructure within the Sub-Saharan Africa (SSA) region.

Roads. Overall, the infrastructure in SSA is in extremely poor condition. Over half of the roads in SSA are not only underdeveloped, but also poorly maintained. Without the required maintenance, many thoroughfares are easily swallowed up by the nearby vegetation, thus serving to severely limit the already marginal flow of traffic, or stop it altogether.[5] This marginal flow of traffic originating on very few paved roads is usually occupied by vehicles that are generally older and in poor condition. These circumstances serve to significantly degrade the ability to move freight and passengers within the region. In addition to the roads being poorly maintained, the region is also hindered by the administrative challenges associated with the local border control, and the fact that many of the Nations are landlocked with no direct access to a port. All of these circumstances result in substantial delays in the delivery of goods, and considerable damage to goods in transit, if they are perishable. The SSA needs a major overhaul in its infrastructure to include the road network system. Substantial upgrades to the current structure will facilitate the increased exchange of exports within the continent. Ideally, by upgrading the present road network and improving their accessibility, this would allow goods and services to be connected to other regions throughout the Sub-Saharan African regions and produce a positive effect on the economy. In general, the inland transport of goods in SSA is characterized by high cost, long delivery times, and high levels of uncertainty. Although the geographic feature of

low road density is a primary contributor to this anomaly, other contributing factors include the lack of proper regulations and political corruption.

Railways. Many of Africa's local railways are in extremely poor condition and are not suitable to support the modern requirement to transport goods. Many of the tracks are in porous condition and over 100 years old.[6] Additionally, many are configured to only support low axle loads, as well as operate only at low speeds. The ability to operate with low axle loads will require a significant increase in the number of rail movements required to transport traditional goods utilizing high axle loads.[7] The additional loads will also increase the operating costs for the additional fuel and maintenance requirements.

Airports. Aviation assets are critical in supporting economic trade in SSA. Many of Africa's airports do not have the modern facilities required to accommodate the landing of large cargo planes. Most of the 260 airports in SSA suffer from a shortage of terminal capacity and more than a quarter of the runways are in are in marginal and poor condition.[8] Additionally, these few airports support the local tourism market. Therefore, with only a few air assets available, combined with the fact that many of those available are supporting tourism, a vast majority of the goods will still be required to travel over land in order to impact the local economy and service the vast majority of the local population. Consequently, it would be advisable for AFRICOM to establish or review bilateral agreements with the Host Nations in order to assist with improvement of the existing airport facilities as well as potentially constructing additional airports with suitable facilities to support large cargo planes.

Seaports. Overall, the continent has very few seaports with the infrastructure to support large cargo vessels. Many of the SSA nations are landlocked and have no direct access to a port. To further complicate matters at the existing seaports, most of the material handling equipment is operated at a capacity in which the output is about half that of other established ports within the Northern Africa region.

This research concluded that the SSA region has a total of 44 international airports and 27 seaports. Of the 27 seaports, eight are large ports and the remaining 19 are medium seaports. Because of the lack of infrastructure, approximately one half of the airports and seaports within the SSA region are not sufficient enough to accommodate large cargo planes, ships and barges. Consequently, planners must consider the feasibility of utilizing seaports of debarkation (SPODs), aerial ports of debarkation (APODS), and/or joint logistics over the shore when preparing for operations.[9] Figure 1, depicts the major international airports and seaports within the SSA regions.

Joint Logistics Capabilities

> As we select our forces and plan our operations…we must understand how logistics can impact on our concepts of operation…Commanders must base all their concepts of operations on what they know they can do logistically. [10]

Core logistics capabilities provide a framework to facilitate integrated decision making, enable effective synchronization and allocation of resources, and optimize joint logistic processes.[11] Across much of the SSA region, the need to secure quality goods and services from private companies and multi-national corporations will not only be challenging, but essential in sustainment operations for AFRICOM. The need to rely on

an accurate, near real-time database will be the key element for the ARFICOM J4 staff to use. The ALN will be that very key, and indispensable, database.

Sub-Saharan Africa	International Airports	Seaports
Central Africa		
Congo Democratic Republic	N'Djili Int'l, Lubmbashi Int'l	N/A
Congo	N/A	Port of Matadi
Equatorial Guinea	Malabo Int'l	N/A
Gabon	Libreville Int'l	Port of Port Gentil
Sao Tome & Principe	Sao Tome Int'l	N/A
East Africa		
Burundi	Bujumbura Int'l	N/A
Djibouti	Djibouti –Ambouli Int'l	Port of Djibouti
Eritrea	Asmara Int'l	Port of Massawa
Ethiopia	Bole Int'l	N/A
Kenya	Moi Int'l, Jomo Kenyatta Int'l	Port of Mombasa
Mauritius	Sir Seewoosagur Ramgoolam Int'l	Port Louis Horbour
Reunion	N/A	East Port (New Port)
Seychelles	Seychelles Int'l	N/A
Tanzania	Julius Nyerere Int'l, Kilimanjaro Int'l, Zanzibar Int'l	Port of Dar es Salaam
Uganda	Entebbe Int'l	N/A
Sudan	Port Sudan New Int'l, Khartoum Int'l	Port of Sudan
West Africa		
Benin	N/A	Port of Cotonou
Cameroon	N/A	Port of Douala
Cape Verde	Amilcar Cabral Int'l	N/A
Central Africa Republic	M'Poko Int'l	N/A
Cote d Lvoire	N/A	Port of Abidjan
Gambia	Banjul Int'l	Port of Dakar
Ghana	Kotoka Int'l	Port of Tema
Guinea	Conakry Int'l	N/A
Liberia	Roberts Int'l	N/A
Mali	Senou Int'l	N/A
Mauritania	Nouakchott Int'l	Port of Nouadhibou
Niger	Diori Hamani Int'l	Port of Niamey
Nigeria	Nnamdi Azikiwe Int'l, Mallam Aminu Kano Int'l, Murtala Mohammed Int'l, Port Harcourt Int'l	Tin Can Island Port, Port of Port Harcourt
Senegal	Leopold Sedar Senghor Int'l	N/A
Sierra Leone	Lungi Int'l	N/A
Southern Africa		
Angola	N/A	Port of Elizabeth
Botswana	Sir Seretse Khana Int'l	N/A
Lesotho	Moshoeshoe Int'l	N/A
Madagascar	N/A	Port of Toamasina
Malawi	Chileka Int'l, Kamuzu Int'l	N/A
Mayotte	Dzaoudzi Pamandzi Int'l	N/A
Mozambique	N/A	Port of Beira, Port of Maputo
Namibia	Windhoek Hosea Kutako Int'l	Port of Namibia
South Africa	Cape Toen Int'l, King Shah Int'l, Tambo Int'l	Naval base Simon's Town, Port of Cape Town, Port of Ngqura, Port of Richards Bay, Port of Durban
Zambia	Lusaka Int'l	N/A
Zimbabwe	Harare Int'l	N/A

Figure 1: International Air and Sea Ports within the SSA[12]

The overall success in the SSA region must be measured by shared external metrics that deliver readiness to the Joint Force Commander (JFC). The processes should be the driving force that initiates synergy across service, agency, and commercial sectors. This, in turn, should lead to increased efficiency and effectiveness which should enable the delivery of the required JFC's end state, along the industrial base capacity.[13] This research evaluated a total of five industries to determine, and identify if available, the by named industries and their feasibility to support each of the SSA regions. These logistical capabilities with selected industries included: construction, transportation, fuel, maintenance, and water. The criteria utilized to evaluate these industries are the following: quality, experience, productivity and geographic location.

A brief description of each of the four criteria used to assess the vendors follows. The criteria of quality refer to the organization's ability to produce a superior product. The organization's procedural know-how and knowledge that its industry gained over a significant period of time is referred to in the experience criteria. The criteria of productivity generally refers to the organization's ability to measure its ratio of production output in relation to what is required to produce. Lastly, the criterion of geographic location involves the organization's ability to have multiple locations in different regions. Figure 2 depicts the performance criteria and their associated explanations.

Criteria	Performance Measurement
Quality	Competency, Credibility, Service Performance
Experience	20 Plus Years of Service, Skilled Employees, Specialized Services
Productivity	High Quality & Quantity, Surplus Value, Production Performance
Geographic Location	Multiple Location, Subregions

Figure 2: Performance Table

Many areas assessed within the SSA were found not adequate to support these requirements because of the poor infrastructure conditions. Aside from the lacking infrastructure, there were very few business alternatives within the local economy to choose from that have the capability to provide the requested products and services.

Of the five services evaluated, the construction industry may be the best logistics capability to employ SSA regional-based companies due to the availability of vendors capable of providing the necessary services. The construction sector focuses on the structure, conduct, and performance which are necessary in order to ascertain whether the current structure and organization of the industry affords it the capacity to respond to the degree of political initiatives likely to produce a construction process that is sustainable.[14] Additionally, the DIMAC services which provide oversight management, architectural designers, and construction sales and services are found in three of the four regions identified during this study. The only region in which it does not currently exist is West Africa. BATIMAT is the service of choice in the West Africa region, and focuses on providing innovative technologies and products in the sustainable construction sector such as materials and equipment. Indirectly, the construction

industry consumes a vast amount of natural resources, particularly at the processing stage, where raw materials are converted into manufactured construction products.

The transportation industry is below average when compared to the normal American standard. CFAO is one of the two principle organizations used, as it has a presence in three of the four African Sub-Saharan regions. CFAO principally provides a large range of utility vehicles and four by four buses and other heavy duty trucks. Additionally, CFAO generally provides spare parts, auto body shops for repairs, as well as tire and maintenance contracts for their fleet of vehicles. RMA Group is the other principle organization present in the region. RMA Group provides sport utility vehicles, as well as light, medium, and heavy duty commercial trucks. Plus, RMA Group provides power generators, forklifts, mining and construction equipment. RMA Group also provides sales and service support, maintenance support, as well as parts and service for their entire product line. Outside of these two organizations, many of the other smaller local businesses offer the option to lease or purchase farming equipment and a minimal fleet of vehicles. However, the vast majority of the equipment available is generally old and in very poor working condition. Consequently, the cost of maintaining this equipment fleet is not very cost effective.

Maintenance within SSA is also below average. There are very few local companies that offer maintenance services within the local economy. In fact, each region has a different organization that is mainly responsible for the conduct of maintenance in their specific area. There is no cross regional maintenance organization. In East Africa, Atlas Recovery and Rescue Services offer roadside recovery, vehicle disposal, vehicle recovery, and accident recovery. In West Africa, Mantra CAT is the

principle maintenance organization. Mantra provides general maintenance, fuel injection test bench, hydraulic pump tests, and transmission and engine tests. Central Africa has K2 Worldwide as the primary maintenance organization. They provide steel repairs, welding and fabrication, structural tank repairs, steel removal and replacement, and electrical services. To further complicate matters, repair parts and equipment are usually extremely hard to obtain/procure. The lack of skilled technical trained and trade skill leveled workers severely hamper the execution of these services within some parts of the region as well. AFRICOM logistics planners should remain vigilant of these conditions and consider contracting U.S. civilian personnel with the appropriate skill sets required to support the removal, disassembly, repair and installation of certain pieces of equipment.

The fourth industry, water, is also below average. Currently, there is a water crisis in the SSA region, and some sources of water are not potable. Most of the water is used for the irrigation of agricultural products and very little is used for human consumption. In order for AFRICOM to mitigate this critical shortfall, options must be considered. The largest organization in the region that provides water is Sogea Satom. Sogea Satom currently provides water conveyance and VRD sump pumps, as well as water pipes and supplies to both West and Central Africa. In the East, Davis and Shirtief is the primary water organization. They provide water pumps, water treatment, power generation and renewable energy. AFRICOM can either choose to import sufficient amounts of bottled water to support its missions, or utilize the production and purification of available sources within the selected regions-be it very limited.

Finally, the availability of fuel falls below average too. Chevron is currently the only organization of any kind that is postured in each of the four regions. Chevron provides oil, natural gas, bio-fuel, fuel cells, gas to liquid, fleet fuel card services, aviation fuel, and motor fuel additives to the region. Additionally, Shell is also a huge factor as a fuel organization on the continent. Shell is currently active in three of the four regions, and offers the exact same services as Chevron. Because of the poor infrastructure, this key factor serves to significantly hinder the mobility for throughput distribution across the four regions. Also, as a direct result, this serves to make fewer fuel tankers available to provide support within a selected region. Added to the fact that there are only 27 operating seaports within the SSA, and most of the material handling equipment at these sites are operating at 50% of capacity serves to further diminish the capacity for fuel. Additionally, many of the SSA nations are landlocked, and do not have the luxury of attaining goods through a seaport. Consequently, these nations must transport their fuel over land utilizing the poor, existing road network, increasing the logistical challenges of distribution.

Figures 3 through 6 depict the regional vendors and companies associated with the five logistics capabilities assessed for this research paper.[15]

Joint Logistics Imperatives

To be effective, the logistics must attain several imperatives. These imperatives include Unity of Effort, Domain-wide Visibility, and Rapid and Precise Response. Unity of Effort, is the coordination and cooperation toward common objectives, even if the participants are not necessarily part of the same command or organization. For joint

Southern Africa Companies/Vendors	
Southern Africa	**DIMAC**: Distribution and material for commercial, Industrial, Residential and leisure facilities. Remodel and repair facilities. Provides oversight management, Architect designers and construction sale and services. **Contact:** Address: BP. 4584 - KIGALI - RWANDA Telephone: (250) 252 57 87 94 Fax: (250) 252 57 87 95 **Drop In The Bucket:** Building wells and sanitation systems. **Contact:** Website: www.dropinthebucket.org
Construction	
Transportation	**RMA Group**: SUV's, Light, Medium and Heavy Duty Commercial Trucks. Power Generators (7.5va to 2500 kva), Forklifts, Mining and construction equipment, Sales and service support, Parts and Service for entire product line, maintenance services. **Contact:** Telephone: +27 (0) 12 803 0118 Email: sales_sa@rmagroup.net Website: www.rmaautomotive.net **Volvo Trucks:** Global Heavyweight Trucks, Volvo FM, Volvo FMX, Volvo FH, Volvo FH16 **Contact:** Address: CNR Jet Park Rd & Saligna Ave, Witfield, Gauteng, South Africa Telephone: (+27 11) 842-5000 Fax: (+27 11) 842-5039 Website: www.volvotrucks.com
Fuel	**Shell**: Provides fuel & Lubricants, automotive & Aviation fuel, fleet card services. **Contact:** Address: The Campus, Twickenham, 57 Sloane Street, Epsom Downs, Bryanston, 2021 Telephone: +27 11 996 7000 Fax :+27 11 996 7777 Website: www.shell.com **Chevron Africa:** Oil, natural gas, bio-fuel, fuel cells, gas to liquid, fleet fuel card services, aviation fuel, motor oil fuel additives, marine. **Contact:** Address: Chevron House 19 DF Malan St. Cape Town, South Africa 8001 Telephone: +27.21.403.7911 Email: Queries@chevron.com **CALTEX Oil:** (Namibia) Ltd. Oil, Natural gas, Bio-fuel, Fuel cells, Gas to liquid, Fleet fuel card services, Aviation fuel, Motor oil fuel additives, Marine. **Contact:** Address: Dr. Frans Indongo Street PO Box 3388 Windhoek Telephone: +264 6122-7340 Website: www.caltex.com
Maintenance	K2 Worldwide: Steel repairs, welding and fabrication, structural tank repairs, Steel removal and replacement, Electrical. **Contact:** Address: K2 Specialist Services (Africa) 1st Floor, Convention Tower Cnr. Heerengracht Str & Coen Steytler Ave, Foreshore Cape Town 8001 Republic of South Africa Telephone: +27 21 403 6365 Fax: +27 21 403 6301 Email: mark.valentine@k2velosi.com Website: www.k2velosi.com **Ford Break Service:** Replace and repair damaged car breaks. **Contact:** Address- Plot 86415 Francistown Telephone: 0026724123 Fax: 00267-2416249
Water	**Global Water Traders:** Specializes in the production, supply and distribution of premium bottled Natural Spring Water. **Contact:** Address: 2 Assegaai Road Cnr. Industrial Ring Road Parow, South Africa Telephone: 021 931 5031 Fax: 021 931 4138 Email: production@globalwatertraders.co.za or designtwo@globalwatertraders.co.za Website: www.globalwatertraders.co.za **WaterAid:** Provides hand dug wells, boreholes, rainwater harvesting, pit latrines. **Contact:** Telephone: + 1 212 683 0430 Fax: + 1 212 683 0293 Website: www.wateraidamerica.org

Figure 3: Southern Africa Companies/Vendors

West Africa Companies/Vendors	
West Africa	**BATIMAT:** Civil Engineering. Provides innovative technologies and products in the sustainable construction sector such as materials and equipment. **Contact:** Address: 01 BP. 1182 - Ouagadougou - Burkina Faso Telephone: (226) 50 31 32 21 Fax: (226) 50 31 18 11 Email: batimat@cenatrin.bf Address: BP. 2735 - Bamako - Mali Telepohne: (223) 20 23 31 77 & 20 23 21 21 Fax: (223) 20 23 40 59 Email: batimatbko@gmail.com Website: www.groupebatimat.com **DELTA**: Commercial, industrial and residential services. Provides oversight management, architect, designers and construction sale and services. **Contact:** Address: 03 BP. 2220 - Cotonou - Benin Telephone: (229) 21 32 39 22 & 95 53 86 70
Construction	
Transportation	**CFAO:** provides a large range of utility vehicles and 4x4s buses and other heavy duty trucks. Spare parts, auto body shop, tires and maintenance contracts. **Contact:** Address: BP. 109 - Bobo Dioulaso - Burkina Faso Telephone: (226) 20 97 12 46 Fax:(226) 20 98 15 95 Website: www.cfaogroup.com **RMA Group:** SUV's, Light, Medium and Heavy Duty Commercial Trucks. Power Generators (7.5va to 2500 kva), Forklifts, Mining and construction equipment, Sales and service support, Parts and Service for entire product line, maintenance services. **Contact:** Website: www.rmagroup.net **Volvo Trucks:** Global Heavyweight Trucks, Volvo FM, Volvo FMX, Volvo FH, Volvo FH16 **Contact:** Address: SMT Nigeria 322 A Ikorodu Road Ikeja / Lagos Telephone: +234 813 778 38 44 Email: info@smt-nigeria.com
Fuel	**Shell:** Provides fuel & Lubricants, automotive & Aviation fuel, fleet card services. **Contact:** Address: BP 08-1062 Cotonou, Benin Telephone: +229 314952 Fax: +229 315180 **Chevron Africa:** Oil, natural gas, Bio-fuel, Fuel cells, Gas to liquid, Fleet fuel card services, Aviation fuel, Motor oil fuel additives, Marine. **Contact:** Address: 2 Chevron Drive, Lekki Peninsula Private Mail Bag 12825 Lagos, Nigeria Telephone: +23.4.1.277-2222
Maintenance	**Mantra CAT:** Provides maintenance, fuel injection test bench, hydraulic pump, transmission and engine test. **Contact:** Address: Z.I. AKPAKPA - PK3, Cotonoua Atlantique Telephone: 229 21 33 30 92 Fax: 229 21 33 04 36 Email: info@beninequipements.com Website: http://www.beninequipements.com
Water	**SOGEA SATOM**: Provides water conveyance and VRD. Water pipes and supplies. **Contact:** Address: P.O.BOX 137 - Emene Enugu - Nigeria Telephone: (234) 42 55 20 54 Fax: (234) 42 55 38 73 Address: BP. 35 - Lome - Togo Telephone: (228) 22 61 55 82 & 22 61 55 83 Fax: (228) 22 61 55 84 Website: www.vinci-construction.com

Figure 4: West Africa Companies/Vendors

East Africa Companies/Vendors	
East Africa	**DIMAC Services:** Building materials for commercial, industrial, residential and leisure facilities. Remodel and repair facilities. Provides oversight management, architect designers and construction sale and services. **Contact:** Address: BP. 2337 - Bujumbura – Burundi Telephone: (257) 22 22 45 00 & 22 22 90 57, Fax: (257) 22 22 68 00 Email: dimac@cbinf.com Address: BP. 4584 - Kigali - Rwanda Telephone: (250) 252 57 87 94 Fax: (250) 252 57 87 95 **DELTA:** Commercial, industrial, residential services. Provides oversight management, architect, designers and construction sale and services. **Contact:** Address:BP. 4216 - Antananarivo – Madagascar Telephone: (261) 202 22 65 11 Fax: (261) 202 23 38 33 Email: delta@delta.mg Address: P.O.BOX 2435 - Lilongwe - Malawi Telephone: (265) 0175 05 60 Fax: (265) 0175 89 80 Email: delta@malawi.net
Construction	
Transportation	**CFAO** provides a large range of utility vehicles and 4x4s buses and other heavy duty trucks. Spare parts, auto body shop, tires and maintenance contracts. **Contact:** Website: www.cfaogroup.com **RMA Group:** SUV's, Light, Medium and Heavy Duty Commercial Trucks. Power Generators (7.5va to 2500 kva), Forklifts, Mining and construction equipment, Sales and service support, Parts and Service for entire product line, maintenance services. **Contact:** Website: www.rmagroup.net
Fuel	**Chevron Mauritius, Ltd:** Provides Techron fuel, Lubricants (Diesel fuel), Auto gas, Aviation, Asphalt, commercial & Industrial fuel, card services for fleet vehicles. **Contact:** Address: Chevron House, Quay D Road, Port Louis Telephone: +230 206 6000 & +230 240 2319 Fax: +230240 2319 Website: www.chevron.com
Maintenance	**Atlas Recovery and Rescue Services**: Roadside recovery, Vehicle recovery, vehicle disposal, accident recovery. **Contact:** Address: Plot 70, Bombo Rd, Kampala Uganda. Telephone:+256 (0)414 568 781
Water	**Davis & Shirtief:** Provides water pumps, water treatment, power generation and renewable energy. **Contact:** Address: P.O.BOX 41762 00100 - Nairobi - Kenya Telephone: (254) 20 696 80 00 & 07 11 07 90 00 Fax: (254) 20 55 76 17 Email: d&s@dayliff.com Website: 0 40 39 & 788 30 33 43 Fax: (250) 252 50 40 33 Email: sales@dayliff.co.rw Website: www.dayliff.com Address: Mlandege St - Zanzibar - Tanzania Telephone: (255) 24 223 46 64 Fax: (255) 24 223 46 60 Email: office@znz.tzdayliff.com **SOGEA SATOM:** Provides water conveyance and VRD. Water pipes and supplies. **Contact:** Address: BP. 1815 - Bujumbura - Burundi Telephone: (257) 22 23 09 66 Fax: (257) 22 23 09 66 Email: contact@sogea-satom.com Website: www.vinci-construction.com

Figure 5: East Africa Companies/Vendors

Central Africa Companies/Vendors	
Central Africa	**DIMAC Services**: Building materials for commercial, industrial, residential and leisure facilities. Remodel and repair facilities. Provides oversight management, architect designers and construction sale and services. **Contact:** Email: dimac@cbinf.com
Construction	**BATIMAT**: Civil Engineering. Provides innovative technologies and products in the sustainable construction sector such as materials and equipment. **Contact:** Address: BP. 668 - Pointe Noire – Congo Telephone: (242) 05 511 33 33
Transportation	**CFAO:** provides a large range of utility vehicles and 4x4s buses and other heavy duty trucks. Spare parts, Auto body shop, Tires and maintenance contracts. **Contact:** Address: BP. 336 - Garoua - Cameroon Telephone: (237) 22 27 14 89 Fax: (237) 22 27 24 89 Website: www.cami-cfao.com **Volvo Trucks:** Global Heavyweight Trucks, Volvo FM, Volvo FMX, Volvo FH, Volvo FH16 **Contact:** Address: 113 rue Denis NGOMO Brazzaville Telephone: +242 069 78 18 23 Email: info@smt-congo.com
Fuel	**Shell:** Provides fuel & Lubricants, automotive & Aviation fuel, fleet card services. **Contact:** Address: 146 - Port-Gentil Telephone: +241 55 80 08 / +241 55 9543 Fax: +241 55 82 74 / +241 55 9572 **Chevron Africa:** Oil, Natural gas, Bio-fuel, Fuel cells, Gas to liquid, Fleet fuel card services, Aviation fuel, Motor oil fuel additives, Marine. **Contact:** Address: Nigeria/Mid-Africa Strategic Business Unit 1400 Smith St. Website: www.chevron.com
Maintenance	**K2 Worldwide:** Steel repairs, welding and fabrication, structural tank repairs, Steel removal and replacement, Electrical. **Contact:** Website: www.k2velosi.com
Water	**SOGEA SATOM:** Provides water conveyance and VRD. Water pipes and supplies. **Contact:** Address: BP. 285 - Sao Tome - São Tome And Principe Telephone: (239) 122 19 02 Fax: (239) 122 29 47

Figure 6: Central Africa Companies/Vendors

logisticians, this is the synchronization and integration of logistic capabilities focused on the commander's intent and is the most critical of all joint logistic outcome. Achieving unity of effort requires the seamless integration of Joint, multinational, interagency, and nongovernmental logistics capabilities. Domain-wide visibility is define as having assured access to logistic processes, resources, and requirements to gain the knowledge necessary to make effective decisions. Joint logistics enviornment-wide visibility provides the means to optimize logistic capabilities to maximize outcomes,

increase readiness, and build confidence in joint logistics. It provides access to authoritative information and enables the user to respond quickly to the Combatant Commander's (CCDR's) changing needs. The third and final imperative is a rapid precise response which defines the ability of the supply chain to effectively meet the constantly changing needs of the joint force.[16]

Cross Regional Database Feeds

The most efficient method for the AFRICOM J4 staff to achieve the key logistics imperatives is to utilize organizations that are capable of providing their services and/or goods across multiple regions of the SSA. Currently, the only industries providing any semblance of cross regional support are construction, transportation, and fuel. Of all the organizations operating within these five industries within the Sub-Saharan African, Chevron is the only one that is truly represented in all regions and able to provide cross regional support throughout the continent. Yet, a small number of other companies, such as DIMAC, CFAO, RMA Group, BATIMAT, and Shell are operating in at least two regions of the four within the SSA.

Figure 7 outlines the vendors and companies which can support multiple regions within the SSA for the three logistical capabilities of construction, transportation and fuel.

As AFRICOM prepares for future operations using the ALN database it will be critical in selecting the right company for the right job. The cross regional companies/vendors highlighted in Figure 7 are diverse and highly skilled. These organizations have the ability to support multiple projects/missions within multiple SSA regions.

CROSS REGIONAL SUPPORT					
Capabilities	Construction	Transportation	Water	Fuel	Maintenance
Southern Africa	X	X	N/A	X	N/A
West Africa	X	X	N/A	X	N/A
East Africa	X	X	N/A	X	N/A
Central Africa	X	X	N/A	X	N/A

Companies		
Construction	Transportation	Fuel
DIMAC Services: Building materials for commercial, industrial, residential and leisure facilities. Remodel and repair facilities. Provides oversight management, architect designers and construction sale and services.	**CFAO** provides a large range of utility vehicles and 4x4s buses and other heavy duty trucks. Spare parts, auto body shop, tires and maintenance contracts.	**Chevron Mauritius, Ltd:** Provides Techron fuel, Lubricants (Diesel fuel), Auto gas, Aviation, Asphalt, commercial & Industrial fuel, card services for fleet vehicles.
DELTA: Commercial, industrial, residential services. Provides oversight management, architect, designers and construction sale and services.	**RMA Group:** SUV's, Light, Medium and Heavy Duty Commercial Trucks. Power Generators (7.5va to 2500 kva), Forklifts, Mining and construction equipment, Sales and service support, Parts and Service for entire product line, maintenance services.	**Shell**: Provides fuel & Lubricants, automotive & Aviation fuel, fleet card services.
BATIMAT: Civil Engineering. Provides innovative technologies and products in the sustainable construction sector such as materials and equipment.	**Volvo Trucks:** Global Heavyweight Trucks, Volvo FM, Volvo FMX, Volvo FH, Volvo FH16	

Figure 7: Cross Regional Support[17]

In addition to the cross region requirement, the Joint Logistics Enviornment (JLE) should be bound together by a web of relationships among global logistic providers, supporting and supported organizations and units, and other entities. The key global providers in the JLE are the Services, the Defense Logistics Agency (DLA), … and United States Transportation Command (USTRANSCOM). The success of effective joint logistics depends on clear roles, responsibilities, and relationships between the

global providers. Global providers manage end-to-end processes that provide capabilities to the supported CCDR, and are challenged to link the CCDR requirements to the outcomes of those processes.[18]

At the strategic level, joint logistics is generally characterized by the vast capacity of the Nation's industrial base, both governmental and commercial. Because of this fact, the Nation's ability to project and sustain military power comes from the strategic level. Therefore, it enables and facilitates sustained military operations over time and represents one of our Nation's greatest strengths. At this level, modern, clearly defined, well-understood and outcome-focused processes should drive effectiveness across Joint, Service, agency, and commercial organizations. These global processes combined with agile force positioning are fundamental to optimizing joint logistics and critical to the Nation's ability to maintain flexibility in the face of constantly changing threats.[19]

As AFRICOM seeks to utilize these identified companies and vendors through contracting support, there will be options to choose from which include the military's Civil Augmentation Programs. The following augmentation programs may be at the combatant command's disposal.

Logistics Civil Augmentation Program (LOGCAP). LOGCAP is a U.S. Army initiative for peacetime planning for the use of civilian contractors in wartime and other contingencies. This program provides the Army with additional means to adequately support both the current and programmed forces. In most cases, customers should consider other contracting vehicles prior to seeking the use of LOGCAP.[20] LOGCAP is designed to support Africa's socio-economic development. With the proper strategic

policies in place, LOGCAP could maximize the employment of Africans by providing quality skills training in certain areas to build and grow future employees of host nation countries with low and various levels of skill sets. By hiring Africans, this will serve to assist in further stimulating the local economy by not outsourcing all of the jobs to third country nationalists.

Needless to say, the presence of qualified acquisition personnel will be critical in this process for contract oversight from inception to closure. Additionally, the Logistics Support Officer (LSO) will be an invaluable asset as well providing guidance and direction in support of LOGCAP. Their presence throughout the entire program will aid the process to ensure that selected companies have the capability to provide the entire scope of work and requirements associated with the U.S. government contracting guidelines. It also provides an additional layer of technical guidance and another honest broker to look out for the interests of all parties involved. One other advantage to the use of contractors in a theater of operations is that it reduces the requirements for military units. Thus, it indirectly produces additional assets for other missions and deployments.

Air Force Contract Augmentation Program (AFCAP). The Air Force Contract Augmentation Program (AFCAP) is a rapid response contract tool to provide capabilities that a customer requires from the commercial sector. It is a contingency tool to provide Civil Engineering and Services personnel as force multipliers by leveraging the use of the commercial sector. Currently, AFCAP provides only urgent, just-in-time logistics requirements to help the Office of U.S. Foreign Disaster Assistance (OFDA) meet its National Command Authority objective to quickly curb the tide of death and human

suffering.[21] For example, the major operation for humanitarian relief and recovery efforts in the Horn of Africa is one of their current missions. AFCAP has a total of five major prime contractors, which allows it the flexibility to provide a full scope of Civil Engineering capabilities and logistics, with the exception of explosive ordnance disposal and flight line crash fire rescue operations.[22] From natural disasters to regional conflicts, AFCAP has the ability to support any mission within the AFRICOM region. As austere areas are being considered for major overhauls, the U.S. and the African people will find it harder to manage requirements without having a solid logistical support system in place. One of the major challenges will be to identify operational companies with the right supplies needed for certain missions/jobs. Additionally, finding a local vendor located within the SSA regions may became a nightmare to many who are not experienced in this field. AFRICOM may need to implement a program that will support its mission to continue to strengthen partnership capabilities while simultaneously building economic stability for the African people. A stable region can significantly contribute to positive global economic development that will serve both U.S. and local interests.

Naval Facilities Engineering Command (NAVFAC). NAVFAC delivers and maintains quality, sustainable facilities, acquires and manages capabilities for the Navy's expeditionary combat forces, provides contingency engineering response, and enables energy security and environmental stewardship.[23] NAVFAC's environmental management is the means of conserving, protecting, and restoring the environment and natural and cultural resources. Good environmental management has the ability to act as a force multiplier and enhance the ability to accomplish assigned missions as well as

improve community and public relations. Their environmental program also includes compliance, natural resources, cultural resources, environmental planning, and environmental restoration.[24] Of all these programs, compliance may be the most important as NAVFAC offers sound technical expertise and support necessary to ensure strict compliance with federal, state, local, and host nation regulations.

The U.S. has several contracting sources at their disposal that can provide the required lift, supply, or support should the situation dictate. These contracting sources include Logistics Civil Augmentation Program (LOGCAP), Air Force Contract Augmentation Program (AFCAP), potential Acquisition and Cross Service Agreements (ACSA), and Host Nation Support (HNS).

The ALN – Now and for the Future

> Simply stated, ALN demands that potential solutions to African continental challenges be attempted at the lowest possible level before U.S. forces are called in. Use the U.S. military to lift, supply and support only when it is the best option, and when all other avenues have been exhausted.[25]

Due to the lack of availability, and an austere environment many supplies and services that are required to support AFRICOM's missions cannot be a sole source option. AFRICOM will have to consider supporting their requirement by intertwining several resources and organizations together to ensure mission success. The findings from this research suggested that various types of infrastructure affect the possibility of good logistics flow in the region. There is no one size fits all answer. AFRICOM will need to utilize multiple resources in order to carry out any current and future missions. The study showed that, the SSA infrastructure is unable to support any large U.S. operations within the area without having to rely on additional support, be it Host Nation Support or U.S. civilian contactors. The lack of roads, railways and airports providing

the right connections for transporting supplies, personnel and materials has hindered the possibility of using one specific source.

Most of the local vendors and companies identified within the scope of this study are well established business owners. Many have remained in business only because they are able to provide quality goods and services. Many of these businesses share a vast knowledge of the local customs and business practices with the types of intricate details required to conduct business. This insider knowledge combined with their ties to the local community makes them valuable resources to harness. As AFRICOM goes through the analysis process to determine which companies and organizations are best postured to fulfill their requirements, maximum efforts should be made to ensure that the utilization of local vendors is considered and vetted appropriately to allow them to compete for a portion of the market share. See Figure 8 on the following page. Additionally, AFRICOM will need to enforce the current U.S. policies concerning contracting and ensure that fully trained military contracting personnel are current on contracting procedures in order to help deter fraud and uncouth business practices. The overall success of a mission or a project will eventually be a product of the organization that will provide the logistical support to the combatant commander.

In addition to utilizing local vendors and companies, there are other elements that must be present in order to successfully accomplish this endeavor. One of these elements is the utilization of the local logistical resources that are already in existence and fully operational within the area of operations. The identification and utilization of these assets and a thorough knowledge of the entire infrastructure will serve to provide the framework to adequately support any contingency operation or project. These local

resources include, but are not limited to all of the active ports, railway, airports and roads located within the region. This detailed report will allow AFRICOM to determine not only the location and capabilities of active resources but also assist in determining the most likely and best courses of action for the transportation of logistical supplies within the local region.

Figure 8: U.S. AFRICOM's Adaptive Logistics Network (ALN) concept[26]

Acquisition and logistics are some of the most dynamic functions, supporting the battlefield. The thorough understanding of these dynamic functions coupled with the added demands of strategic planning and coordination, can undoubtedly act as a key force multiplier. The ability to provide the right assets and equipment in the right place and on time can directly impact successful mission accomplishment. By connecting Africa one region at a time through logistical policies, it will enable AFRICOM to slowly strengthen its partnerships with the region while allowing the African people to in turn help themselves. The identification of all local resources such as active ports, railway,

airways and roads combined with a thorough analysis will not only allow AFRICOM to determine active resources within the existing infrastructure, but also to determine the best route suited to transport logistical supplies as well.

For many years contractors on the battlefield have proven that they are value added in all senses of the word. Contractors have always supported our armed forces, whether bridging the gap prior to the arrival of critical military support resources, or when host nation support is not available. We can no longer successfully accomplish our mission without the significant contributions of contractors on the battlefield. Having provided a detailed capability assessment of resources available within the SSA, it is imperative that an existing process provide the linkage between current resources and the ability to support AFRICOM's mission. In addition to supporting the mission, this process should cultivate and strengthen the partnership between the United States and the African people by utilizing local vendors and companies to support AFRICOM’s vision statement for providing partnership, peace, and stability to the region.

Through this research effort, organizations within the SSA do exist and are capable, within limitations, of providing key logistical services for not only the Department of Defense, but also other U.S. government agencies as well.

As stated by Brigadier General Martin, Deputy Director for Logistics, United States Africa Command “the challenges and opportunities in AFRICOM’s Area of Responsibility are complex and dynamic. The application of the military only means is now insufficient to help the [SSA] nations achieve their best posture heading into the uncertain future. AFRICOM continues to seek to be part of a coordinated effort that integrates all available resources for the promotion of the [SSA] partner nations. They

have been able to accomplish this though the focused efforts of their logistics by maximizing the limited resources on the African continent and building cooperative relationships with the partner nations."[27] This has been achieved through the use of ALN. The ALN is applicable no matter what the line of operation. From combat to humanitarian assistance to disaster relief, the task of heavy lifting, delivery and distribution of goods and services to those in need will continue to be borne not just by the U.S. military, but by a talented, professional, assertive collection of multinational partners committed to mission success.[28]

It is imperative that the ALN remains a vital logistical database to the AFRICOM logistics planners…now and in the future.

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